FID/R233

FAO Fisheries Report No. 233 FID/R233(En)

Report of the sixth joint meeting of the

INDIAN OCEAN FISHERY COMMISSION

Committee on Management of Indian Ocean Tuna

Seventh Session

and the

LIBRARY
JUL 6 1981
National Marine Fisheries Service
2570 Dole Street
Honolulu, Hawaii

INDO-PACIFIC FISHERY COMMISSION

Special Committee on Management of Indo-Pacific Tuna

Sixth Session

Perth, Australia, 20-22 February 1980

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Digitized by the Internet Archive
in 2025

https://archive.org/details/fao-fisheries-and-aquaculture-report_1980_233

REPORT OF THE SIXTH JOINT MEETING OF THE

INDIAN OCEAN FISHERY COMMISSION

Committee on Management of Indian Ocean Tuna

Seventh Session

and the

INDO-PACIFIC FISHERY COMMISSION

Special Committee on Management of Indo-Pacific Tuna

Sixth Session

Perth, Australia, 20-22 February 1980

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Rome, 1980

The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

M-43

ISBN 92-5-100939-2

The copyright in this book is vested in the Food and Agriculture Organization of the United Nations. The book may not be reproduced, in whole or in part, by any method or process, without written permission from the copyright holder. Applications for such permission, with a statement of the purpose and extent of the reproduction desired, should be addressed to the Director, Publications Division, Food and Agriculture Organization of the United Nations, Via delle Terme di Caracalla, 00100 Rome, Italy.

© FAO 1980

PREPARATION OF THIS REPORT

This is the final version of the report as approved by the sixth joint meeting of the Indian Ocean Fishery Commission Committee on Management of Indian Ocean Tuna and the Indo-Pacific Fishery Commission Special Committee on Management of Indo-Pacific Tuna.

Distribution

Participants in the meeting
Members of the Indian Ocean Fishery Commission
Members of the Indo-Pacific Fishery Commission
Other interested nations and international organizations
FAO Fisheries Department
Fishery Officers in FAO Regional Offices

For bibliographic purposes this document should be cited as follows:

IOFC/IPFC, 1980 Report of the sixth Joint Meeting of the Indian Ocean Fishery Commission Committee on Management of Indian Ocean Tuna, Seventh Session, and, the Indo-Pacific Fishery Commission Special Committee on Management of Indo-Pacific Tuna, Sixth Session. Perth, Australia, 20-22 February 1980. FAO Fish.Rep., (233):18 p.

CONTENTS

	Paragraphs
OPENING OF THE JOINT MEETING	1 - 2
ADOPTION OF THE AGENDA AND ARRANGEMENTS FOR THE JOINT MEETING	3
KNOWLEDGE OF THE RESOURCES AND THE FISHERIES	4 - 12
MANAGEMENT AND DEVELOPMENT MEASURES	13 - 19
IMPROVEMENT OF THE DATA BASE	20 - 24
INSTITUTIONAL AND FINANCIAL ARRANGEMENTS FOR INTERNATIONAL COOPERATION	25 - 32
REQUIREMENTS FOR IMMEDIATE ACTION WITH RESPECT TO DATA COLLECTION, MANAGEMENT AND DEVELOPMENT	33 - 35
ANY OTHER MATTERS	36
ELECTION OF OFFICERS	37
DATE AND PLACE OF THE NEXT JOINT MEETING	38

		Page
Appendix A	List of delegates and observers	7
B	Agenda	12
C	List of documents	13
D	Re-estimation of southern bluefin tuna population parameters	14
E	Report of the ad hoc sessional Committee on Tuna Research in the Western Pacific and Indian Oceans	17

OPENING OF THE JOINT MEETING

1. The Sixth Joint Meeting of the IOFC Committee on Management of Indian Ocean Tuna and of the IPFC Special Committee on Management of Indo-Pacific Tuna was held at the Park Towers Hotel, Perth, Australia, on 20-22 February 1980. The meeting was attended by representatives from 12 of the 14 member countries, and from four other members of IOFC and one international organization. A list of delegates and observers is given in Appendix A to this report.

2. Mr. E.A. Purnell-Webb (Australia) was in the chair, and welcomed participants, especially those from Mauritius and the Seychelles who were attending for the first time.

ADOPTION OF THE AGENDA AND ARRANGEMENTS FOR THE JOINT MEETING

3. The agenda, as given in Appendix B, was adopted. A list of the documents considered by the Committees is given in Appendix C.

KNOWLEDGE OF THE RESOURCES AND THE FISHERIES

4. The Committees heard a brief summary review of the current state of resources from the Secretariat, as set out in document IOFC/IPFC:TM/80/4, and a more detailed review from Dr. R.S. Shomura (U.S.A.) of the results of the Workshop held in Shimizu, Japan, in June 1979 (Inf. 5). Several delegates described recent events in their national tuna fisheries. In particular the Australian delegate described some re-assessments of the data of the southern bluefin fisheries which had been carried out following the Shimizu meeting. This new work (see Appendix D), using an improved method of analysing length distributions, had removed some of the inconsistencies between the data based on tag returns, and those from the estimated age composition of commercial catches.

5. The more recent studies confirm earlier conclusions that, while there is considerable opportunity to expand tuna catches in the Indian Ocean and Western Pacific, some stocks are already heavily fished. Most stocks of large tuna exploited by the longline fishery have been exploited to the stage that little, if any, further increase in catch can be expected from further increases in longline fishing effort. For some species, notably yellowfin in the Indian Ocean, considerable reductions in the amount of longline fishing (and also potentially in costs) could be made without any loss in sustained catch, and these stocks may be said to be overfished in economic terms. However biological overfishing, in the sense of sustained falls in the weight caught, does not yet seem to be a problem in the tuna fisheries of the IOFC/IPFC region.

6. Taking account of the desires of coastal States to increase their participation in the tuna fisheries, which is at present generally rather small, the Committees felt that it would be undesirable to over-react to the reported heavy exploitation of some tuna stocks, at least in terms of applying restrictive measures. At the same time it was noted that the low level of catch rates caused by heavy fishing was an important economic factor which may make it difficult for more coastal States to enter the longline tuna fisheries. Therefore it would be to the advantage of these coastal States if there were a reduction in the amount of fishing by distant water fishing nations.

7. A general constraint to the development of fishing by the coastal States is the lack of information about the resource - the nature, magnitude and distribution of the major stocks, the size and distribution of present catches, the location and timing of the better fishing grounds, the catch rates to be expected by different types of gear, etc. Much of this information would be available from the records of the existing fisheries, which are, especially in the Indian Ocean, principally carried out by long-range fleets. The establishment of a regional centre to handle catch statistics and related data is therefore urgent. This was considered in detail under a later agenda item.

8. Other types of biological research, such as surveys, or a tagging experiment similar to that successfully carried out by the South Pacific Commission, are important in providing resource information. In view of the migratory nature of most tuna, these programmes are likely to be most effective if there is close collaboration between countries in their implementation. These were also discussed under a later agenda item.

9. An important item of information about the resource is the amount of catches that can be taken. This has been commonly expressed as the Maximum Sustainable Yield (MSY) from the resource. For any stock of fish there are dangers in taking two numbers - the estimate of MSY and the estimate of current catches - as providing complete information on the state of exploitation of that stock.

10. One problem is that the sustainable yield that can be taken depends on the sizes of fish harvested, as well as on the amount of fishing. Thus the greatest amount of yellowfin that can be taken, on the average over a period, by longline fishing in the Indian Ocean is probably a little less than 40 000 tons. However, it is probable, by analogy with the Atlantic, that the total catches, including surface catches, could be considerably increased above their present level of 40 000-50 000 tons, if the effort on medium-sized fish were increased.

11. A single figure for MSY also overlooks the considerable fluctuations that can occur for natural reasons. For example, because of what appears to have been an unusually good year class, the catches of yellowfin in the Indian Ocean doubled between 1967 and 1968, reaching 88 000 tons, but the effort did not increase, and this high figure did not represent, under the circumstances of 1968, a dangerous level of 'overfishing'.

12. The greatest danger of the use of a single figure of MSY is that it fails to provide some of the most important information required by those planning development or management of their fisheries. The yield curve for many tuna fisheries appears to be very flat, so that as the maximum is approached the increase in yield achieved by a given increase in effort is small or very small, while the catch rate decreases sharply. In these circumstances a country's objective might be to fish at a level of effort significantly below that giving MSY. In any case careful consideration of the effects on catch rates (as well as on total catch) would need to be given before deciding, for example, on increasing the national fleet, or allowing access by foreign fleets.

MANAGEMENT AND DEVELOPMENT MEASURES

13. In considering this item, the joint meeting took into account documents IOFC/IPFC: TM/80/5 and TM/80/6 and IOFC/IPFC:TM/80/Inf.6 through TM/80/Inf.11.

14. The Committees noted the rapid changes which were taking place in the tuna fisheries of the Indian and Western Pacific Oceans. Extension of fisheries jurisdiction by coastal States, rising costs of fishing, development of purse-seining technology and expansions of fisheries by coastal States were likely to have important effects on the distribution of fishing and on the proportions of the total catch taken by different countries in the future.

15. Summarizing, the Secretariat noted the difficulties encountered in attempting to define a broad set of objectives for tuna management because of varying and sometimes conflicting interests of different States. For the time being, it was agreed that the Committees not spend a great deal of time debating the question of objectives but instead concentrate on identifying fields where international cooperation would assist member countries to achieve goals where their interests were complementary and to avoid or resolve conflicts where interests differed.

16. Some delegations expressed the view that international cooperation in management should not impinge on the sovereign rights of coastal States within their exclusive economic zones. Furthermore, regulation of tuna fisheries should not be applied in a manner which would prevent developing coastal States from expanding their tuna fisheries. Their view was that developing coastal States should be permitted to take an increasing share of the total tuna catch from the Indian Ocean, requiring a phased reduction of fishing by distant-water fishing nations. Member countries of the Committees affirmed their commitment to work within appropriate international organizations to ensure cooperation in the exchange of statistics, in research and in actions required to conserve the stocks. Some delegations indicated their reservation to accept such regulations as might not be in harmony with their national rights and interests or were not based on scientific evidence.

17. It was the general view of the delegates that a regulatory system for tuna of the Indian Ocean should not require compulsion but instead should be developed by consensus actions.

18. The Committees reaffirmed views expressed in earlier meetings that collation, storage, retrieval, and dissemination of statistics was a matter that required broad international cooperation. Most delegates from developing coastal States emphasized the urgent need for research and surveys not only as background for possible conservation measures but also as a basis for development. Because of the highly migratory nature of many tuna stocks, such work would best be carried out on an international basis. The highly successful skipjack tagging programme being conducted in the South Pacific by the South Pacific Commission was pointed to as the type of programme that might be of great value in the Indian Ocean and the Western Pacific. The Committees established a sessional ad hoc Committee to develop a proposal for research on the tuna stocks of the Indian and Western Pacific Oceans (Appendix E). The Committees recommended that IOFC and IPFC endorse the proposal in principle, that the United Nations Development Programme (UNDP) be invited to provide support for the addition of a tuna scientist to the UNDP/FAO Project for Tuna Management in the Indian and Pacific Oceans, to carry out the following tasks:

(a) Review alternative research programmes in the light of the comments of the ad hoc Committee,

(b) Draw up concrete research proposals, and

(c) Promote funding to implement these proposals.

They also recommended that FAO seek appropriate funding for the field project when the detailed proposal has been elaborated.

19. Reference was also made to the important role which was expected of the planned technical support units to be attached to sub-regional committees, particularly with regard to development activities and to the harmonization of national policies and programmes.

IMPROVEMENT OF THE DATA BASE

20. The Committees heard a report from the FAO/UNDP tuna specialist on the work he had carried out following the request made at the previous session of the Committees. They congratulated him on the work done, which was a positive step toward the establishment of a full-scale tuna data centre for the region. In discussing the results of his visits to countries, it was noted that some modification of details should be made for the final version of the report.

21. The information on the relative advantages of different systems of handling data (mini computer, time sharing and block time) contained in the report was welcomed. It was agreed that this would be most useful in reaching a definite decision, when a permanent centre was established.

22. The Committees stressed the importance of establishing a permanent data centre, and welcomed the information that funding was expected from UNDP, at least for an interim period (see paragraph 31). They further stressed the importance of the supply of accurate and reliable data, which required the full cooperation of member countries, as well as careful checking of the data by the staff of the data centre. The delegate of Australia drew attention to the progress that had been achieved in obtaining timely data from foreign fleets operating off the Australian coasts. The Committees believed that this provided a potentially valuable model, which should be examined for possible wider application.

23. The success of a regional data centre would depend critically on the quality of national data, and therefore increased attention should be given to improving such quality, which in many cases was poor. It was noted that in many situations improved data could be achieved at the same cost by a properly designed sampling scheme, based on frame surveys, rather than by attempting a complete enumeration. FAO could help by continuing and intensifying its programme of assistance in statistics, e.g., through statisticians in the regional or sub-regional projects, or training in computer methods.

24. A valuable step in improving national statistics would be the production of a Field Manual, such as that used by the International Commission for the Conservation of Atlantic Tunas (ICCAT) for Atlantic tuna statistics, and it was recommended that the production of such a manual should receive priority in the work of the tuna project.

INSTITUTIONAL AND FINANCIAL ARRANGEMENTS FOR INTERNATIONAL COOPERATION

25. The Committees noted that under the previous items of the agenda they had identified a number of functions and activities which must be performed or carried out at the sub-regional and regional level. It was therefore appropriate to consider what institutional arrangements were available or required to ensure the necessary intergovernmental cooperation and how the relevant costs would be met.

26. As regards institutional arrangements, the Committees confirmed the conclusion they had reached at their last joint meeting and reiterated that the best solution, at least for the foreseeable future, was to strengthen the present IOFC and IPFC secretariats or establish a separate tuna management secretariat within IOFC and IPFC. They noted with satisfaction that at its thirteenth session in October 1979, the Committee on Fisheries had strongly endorsed the role of IOFC and IPFC in pressing for international cooperation for the rational utilization of tuna resources in the Indian Ocean and part of the Western Pacific.

27. The attention of the Committees was invited to the fact that the terms of reference of the IOFC Committee on Management of Indian Ocean Tuna were considerably more vague and imprecise than those of the IPFC Special Committee on Management of Indo-Pacific Tuna. The Committees agreed to recommend to the Indian Ocean Fishery Commission that the responsibilities of the IOFC Committee should be brought into line with those of the IPFC Committee so that both could, in their respective areas of competence:

(a) review the state of the stocks of tuna particularly in relation to the level of exploitation and likely development;

(b) consider the boundaries of the area that have to be taken into account in any management of tuna, bearing in mind particularly the movements of fish and fishing vessels;

(c) review measures that might be considered for management and development planning of the tuna fisheries and suggest the administrative and other actions that would be required to put such measures into effect, and

(d) consider arrangements for ensuring the continuation and coordination of the necessary research and the continuing re-assessment of the state of the stocks.

It was emphasized that no action or recommendation of the Committees should affect or prejudice the sovereign rights of coastal States in their extended zones of jurisdiction.

28. The Committees noted that the composition of the ICFC Committee on Management of Indian Ocean Tuna had been set by the Indian Ocean Fishery Commission in 1968 and had not changed since that time. In view of the increased participation of developing coastal states in tuna fisheries in the region, they agreed to recommend to the Commission that it might consider making the Committee an open-ended one, so that any member country of the Commission could become a member of the Committee if it so wished.

29. Lastly, the Committees pointed to the need for cooperation and coordination with international commissions and agencies concerned with tuna. They suggested that FAO should envisage sponsoring a meeting of representatives from those commissions and agencies. The main objectives of such a meeting would be to help ensure that compatible systems are used for the collection and exchange of information and that there are no gaps in reporting or no duplicate reporting between regions.

30. As regards financial aspects, the Committees were informed that since their last joint meeting no further replies had been received to the questionnaire by which the views of member countries had been solicited on methods of funding the expanded secretariat services required.

31. The Committees noted with appreciation that the Division for Global and Interregional Projects and the Bureau for Asia and the Pacific of UNDP had agreed to finance, for the period 1980-81, a Project for Tuna Management in the Indian and Pacific Oceans. The Project Document had just been submitted to the countries concerned and delegations were urged to assist in obtaining the endorsement of their Governments for the Project. It was also pointed out that it would be necessary to continue the Project during the next UNDP cycle in 1982-86. The Committees agreed that delegations should urge their governments to support the Project strongly in the appropriate form, particularly at the forthcoming FAO Regional Conferences for Asia and the Pacific (New Delhi, India, March 1980) and Africa (Lomé, Togo, June 1980) as well as at the forthcoming session of the Governing Council of UNDP.

32. At the same time, the Committees realized that efforts should be made to devise satisfactory solutions for longer-term funding. They agreed that one of the responsibilities to be entrusted to the staff of the Project for Tuna Management in the Indian and Pacific Oceans should be to prepare options for long-term management of tuna, together with budgets and suggested funding systems. Most delegations which took the floor on this matter indicated that they were in favour of the principle "users pay", that is to say that the total cost would be divided among the countries concerned in proportion to their interest in the tuna fisheries, as judged for example by the amount of catches, the tonnage of tuna vessels or the number of stocks exploited.

REQUIREMENTS FOR IMMEDIATE ACTION WITH RESPECT TO DATA COLLECTION, MANAGEMENT AND DEVELOPMENT

33. The Committees believed that with the initiation of the UNDP/FAO Project for Tuna Management in the Indian and Pacific Oceans an important item requiring attention in the near future was to review the progress of this project. There was also a need for countries to consult closely on research planning. The Committees therefore agreed that their next meeting should take place in approximately 12 months. It was agreed that, inter alia, the meeting should:

(a) review the operations of the UNDP/FAO Project for Tuna Management in the Indian and Pacific Oceans, provide the Project Leader with advice on future activities and develop mechanisms to facilitate the Project's work;

(b) review progress regarding the proposal for an international programme of research on Indian Ocean and Western Pacific tunas;

(c) consider the development of mechanisms for more orderly and regular conduct of stock assessment work, coordination of research planning and review of research results by fisheries managers.

34. The Committees considered that within the next two years a Workshop should be held to review the data base required for stock assessments of major species of tuna, to carry out assessments on selected stocks which had not been considered at the recent Workshop meeting held in Shimizu, Japan, and to review the implications of the results of the South Pacific Commission's skipjack tagging programme with respect to skipjack fisheries of member countries.

35. Other proposals for immediate action were considered under agenda items 4-6 and are included in the relevant section of the report.

ANY OTHER MATTERS

36. No matters, other than those considered under the earlier agenda items, were raised.

ELECTION OF OFFICERS

37. The Committee elected Australia as Chairman and India as Vice Chairman.

DATE AND PLACE OF THE NEXT JOINT MEETING

38. It was agreed that the next joint meeting should meet within about 12 months with the precise date and place to be decided by the Director-General of FAO, in consultation with member countries. Arrangements should be finalized at the time of the IPFC session to be held in Kyoto in May 1980.

Appendix A

LIST OF DELEGATES AND OBSERVERS

x+ Australia

PURNELL-WEBB, E.A.
First Assistant Secretary
Department of Primary Industry
Fisheries Division
Edmund Barton Building
Barton
Canberra, A.C.T. 2600

WALKER, R.H.
Director
Resource Management
Department of Primary Industry
Fisheries Division
Canberra, A.C.T. 2600

MURPHY, Dr. G.I.
Head, Living Resources
CSIRO
Division of Fisheries and Oceanography
P.O. Box 21
Cronulla, N.S.W. 2230

BOWEN, B.K.
Director of Fisheries and Wildlife
Department of Fisheries and Wildlife
108 Adelaide Terrace
Perth, W.A. 6000

HANCOCK, Dr. D.A.
Chief Research Officer
Department of Fisheries and Wildlife
W.A. Marine Research Laboratories
P.O. Box 20
North Beach, Perth, W.A. 6020

HANFIELD, E.H.
Senior Foreign Affairs Representative
Department of Foreign Affairs
Council House
27 St. George's Terrace
Perth, W.A.

HARRISS, R.N.
Fisheries Division
Department of Primary Industry
Multilateral Relations Section
Canberra, A.C.T. 2600

HUNT, R.L.
Hunts Foods Pty Ltd.
53 Mount Street
Perth, W.A. 6000

JURY, L.
Regional Executive Officer
Department of Primary Industry
Box M.957 G.P.O.
Perth, W.A.

MEARNS, A.J.
Department of Fisheries and Wildlife
108 Adelaide Terrace
Perth, W.A. 6000

ROBINS, J.P.
Department of Fisheries and Wildlife
108 Adelaide Terrace
Perth, W.A. 6000

SLACK-SMITH, R.J.
Director of Fisheries
Northern Territory
Fisheries Division
P.O. Box 5160
Darwin, N.T. 5794

THOMAS, M.A.
Vice-President
Australian Fishing Industry Council
Box 1073 Pt Lincoln
S.A. 5606

x+ France

MARCILLE, J.
Chargé de recherches
Office de la recherche scientifique
et technique outre-mer (ORSTOM)
B.P. A5
Nouméa, Nouvelle-Calédonie

x India

MUKERJI, S.P.
Additional Secretary
Department of Agriculture
Krishi Bhavan
New Delhi 1

---

x IOFC Committee

\+ IPFC Committee

NARAYANA RAO, K.V.
Senior Scientist
Central Marine Fisheries Research Institute
Cochin 682018, Kerala

x+ Indonesia

SOEWITO
Director of Living Resources Management
Directorate-General of Fisheries
Jalan Salemba Raya 16
Jakarta

SOESANTO, V.
Assistant to Director-General of Fisheries
Directorate-General of Fisheries
Jalan Salemba Raya 16
Jakarta

SOEPANTO
President Director
State Fisheries Enterprise
P.T. Usaha Mina (Persero)
Jalan Kramat Raya 7-9
Gedung Piola
Jakarta

SIMANDJUNTAK, M.M.
President Director
P.T. Perikanan Samodra Besar
State Fisheries Enterprise
55 Salemba Raya
Jakarta Pusat

x+ Japan

ISHIDA, S.
Assistant Director
International Affairs Division
Oceanic Fisheries Department
Fisheries Agency
Ministry of Agriculture, Forestry and Fisheries
1-2-1 Kasumigaseki
Chiyoda-ku, Tokyo

YONEMORI, T.
Chief
No. 1 Research Section of Pelagic Resources
Division of Pelagic Resources
Far Seas Fisheries Research Laboratory
1000 Orido, Shimizu
Shizuoka 424

NAGAMINE, A.
Chief
Overseas Research Division
Federation of Japan Tuna Fisheries Cooperative Associations
2-3-22 Kudankita Chiyoda-ku
Tokyo

x Kenya

ODERO, N.
Director of Fisheries
Fisheries Department
Ministry of Environment and Natural Resources
P.O. Box 58187
Nairobi

MUMBA, J.S.
Assistant Director of Fisheries (Marine)
Ministry of Environment and Natural Resources
P.O. Box 90423
Mombasa

x+ Korea (Republic of)

KIM, Hyun-Kyun
International Fisheries Councillor
Office of Fisheries
Dae-Woo Building 19th
Jang Dong, Jung-ku
Seoul

LEE, Jang-Uk
Senior Research Scientist
National Fisheries Research and Development Agency
Busan

+ New Zealand

+ Philippines

x+ Sri Lanka

WEERARATNE, A.
Secretary
Ministry of Fisheries
P.O. Box 1707
Galle Face
Colombo 3

DE BRUIN, Dr. G.H.P.
Director (Research)
Ministry of Fisheries
P.O. Box 1707
Galle Face
Colombo 3

x Tanzania

LIBABA, G.K.
Director of Fisheries
Ministry of Natural Resources and Tourism
P.O. Box 2462
Dar es-Salaam

\+ Thailand

SIDTHIMUNKA, A.
Deputy Director-General (Fisheries)
Department of Fisheries
Ministry of Agriculture and Cooperatives
Rajadamnern Avenue
Bangkok 2

SITTHICHAIKASEM, Dr. S.
Senior Fisheries Biologist
Marine Fisheries Division
89/1 Soi Sapan Pla
Yannawa, Bangkok 12

\+ United Kingdom

HALL, Dr. D.N.F.
Principal Fisheries Adviser
Overseas Development Administration
Foreign and Commonwealth Office
Eland House
Stag Place
London, S.W. 1

x+ United States of America

SHOMURA, R.
Director
Honolulu Laboratory
Southwest Fisheries Center
National Marine Fisheries Service
P.O. Box 3830
Honolulu HI 96822

OBSERVERS FROM MEMBER NATIONS
NOT MEMBERS OF THE COMMITTEES

Bahrain

FAKHRO, K.
Director of Fisheries
Directorate of Fisheries
Ministry of Commerce and Agriculture
P.O. Box 5479
Manama

Greece

THEODORACOPOULOS, P.
Consul of Greece
16 St. George's Terrace
Perth, W.A. 6000, Australia

Mauritius

ARDILL, D.
Divisional Scientific Officer (Fisheries)
Ministry of Fisheries
Port-Louis

Seychelles

KROEPELIEN, T.
Fisheries Adviser
Department of Agriculture
P.O. Box 54
Mahe

OBSERVER FROM AN INTERGOVERNMENTAL
ORGANIZATION

South Pacific Forum Fisheries Agency

DAVIES, B.
Programmer/Statistician
SPFFA
P.O. Box 627
Honiara, Solomon Islands

FAO FISHERIES DEPARTMENT

Headquarters

LUCAS, K.C.
Assistant Director-General (Fisheries)
Fisheries Department
FAO
Via delle Terme di Caracalla
00100 Rome, Italy

CARROZ, J.E.
Director
Fishery Policy and Planning Division
Fisheries Department
FAO
Via delle Terme di Caracalla
00100 Rome, Italy

GULLAND, Dr. J.A.
Chief
Marine Resources Service
Fishery Resources and Environment Division
Fisheries Department
FAO
Via delle Terme di Caracalla
00100 Rome, Italy

KAMBONA, J.J.
Senior Fishery Liaison Officer
Fishery International Institutions and Liaison Unit
Fishery Policy and Planning Division
Fisheries Department
FAO
Via delle Terme di Caracalla
00100 Rome, Italy

SHEPARD, Dr. M.P.
FAO Consultant
119-645 Fort Street
Victoria, B.C., Canada

Field

SKILLMAN, Dr. R.A.
Tuna Specialist
c/o South China Sea Fisheries Development and Coordinating Programme
P.O. Box 1184 MCC
Makati
Metro Manila, Philippines

SPERLING, H.
Regional Fisheries Coordinator (South Pacific)
c/o Regional Representative of the UNDP
Private Mail Bag
Suva, Fiji

OFFICERS OF THE COMMITTEES AT THE SIXTH SESSION

Chairman	E.A. Purnell-Webb (Australia)
Vice Chairman	R. Shomura (United States of America)

SECRETARIAT

Host Government

Liaison Officer	B.K. Bowen
Assisted by:	L. Jury E. Hanfield A.J. Mearns J. Smytherman B. Harriss B. Jones K. Carhart D. Franklin C. Soane J. King S. Hannan P. Maluinas B.V. Downing
Interpretation Equipment Operator	N. Barbey

FAO

Secretary of the Committees	J.A. Gulland
Meetings Officer	Myrtha Poblete-de la Fuente
Meetings Assistant	Luisa Almagiá
Translator	J. Maréchal
Chief Interpreter	A. Attia
Interpreters	T.L. Fowler N. Hinton N. Kieffer D. Porret

Appendix B

AGENDA

1. Opening of the joint meeting
2. Adoption of the agenda and arrangements for the joint meeting
3. Knowledge of the resources and the fisheries
4. Management and development measures
   (a) Definition of management and development objectives
   (b) Options for achieving management and development objectives at the national and international level
5. Improvement of the data base
   (a) At the national level
   (b) At the international level, including the compilation and dissemination of statistics on a resource-wide basis
6. Institutional and financial arrangements for international cooperation
7. Requirements for immediate action with respect to data collection, management and development
8. Any other matters
9. Election of officers
10. Date and place of the next joint meeting
11. Adoption of the report

Appendix C

LIST OF DOCUMENTS

IOFC/IPFC:TM/80/1		Provisional agenda
	2	Annotated provisional agenda
	3	Provisional timetable
	4	Summary review of the state of tuna fisheries in the Indian Ocean and Western Pacific
	5	Options for management of tuna in the Indian Ocean and Western Pacific
	6	Participation of coastal States in the exploitation of tuna and in the management of fisheries
IOFC/IPFC:TM/80/Inf.1		List of documents
	2	Information for participants
	3	List of delegates and observers
	4	Progress report of UNDP tuna specialist
	5	Report of the Workshop on the Assessment of Selected Tuna and Billfish Stocks in the Pacific and Indian Oceans, Shimizu, Japan
	6	Rapporteur's Report - Tuna Consultation Meeting, Manila, Philippines, 26-29 June 1979
	7	Report of the fifth joint meeting of the IPFC Special Committee on Management of Indo-Pacific Tuna (5th session) and the IOFC Committee on Management of Indian Ocean Tuna (6th session), Manila, Philippines, 3-4 March 1978
	8	Extracts from the report of the eighteenth session of the Indo-Pacific Fishery Commission, Manila, Philippines, 8-17 March 1978
	9	Tuna management problems
	10	Extracts from the report of the thirteenth session of the Committee on Fisheries, Rome, 8-12 October 1979
	11	Estimates of fishing effort and resulting catches of tunas and billfish by the three principal longline fishing countries from within the 200-mile economic zone of the countries of the Indian and Western Pacific Oceans

Appendix D

RE-ESTIMATION OF SOUTHERN BLUEFIN TUNA POPULATION PARAMETERS

At the Shimizu meeting it was noted that estimates of mortality based on tag returns submitted by Australia were much lower than estimates based on cohort analysis developed and presented by Japanese scientists. Participants at the meeting also noted that the age structure of the population used for the cohort analysis was not compatible with the observed age structure of the tagged population. The meeting suggested that this discrepancy was most likely attributable to the parameters of the Von Bertalanffy equation used to dissect the size frequency data into ages and possibly to the systematic effect fishing has on the size composition of a cohort as it ages.

The classical way to dissect a size frequency array into an age frequency is to first estimate (by one of several means) the parameters of the Von Bertalanffy equation:

$$L_t = L\left[1 - e^{-k(t-t_o)}\right]$$

and then prepare an age length key which is used to dissect the array.

Noting that it is statistically unsound to estimate y from X and then use the estimated parameters to estimate X from y the relationship was inverted yielding:

$$t_i = t_o - \frac{1}{k} \ln\left(1 - \frac{Li}{Loo}\right) + E_i$$

The parameters of this equation (t_o, K, and Loo) were estimated by least squares (3 parameters free) fitting to the tagging data using the full data set yielding the following estimates:

L_{oo} 211.6 cm

K .112

t_o -0.41

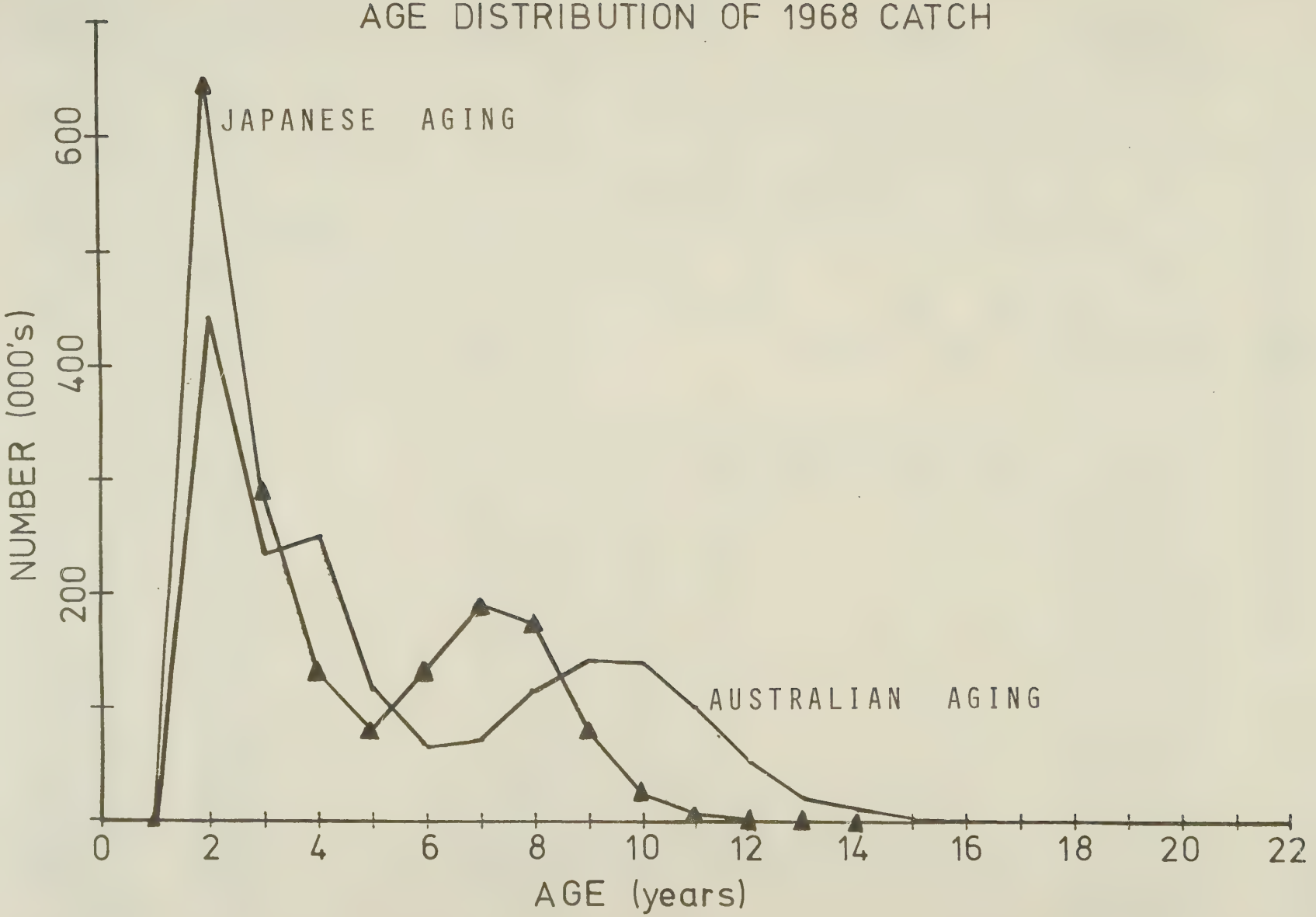
These were then used in the inverted equation to dissect the size data into ages. The resultant age frequencies were then used in a standard cohort analysis. It is worth noting that these estimated parameters are quite compatible with all observations including the maximum length observed by Japanese scientists.

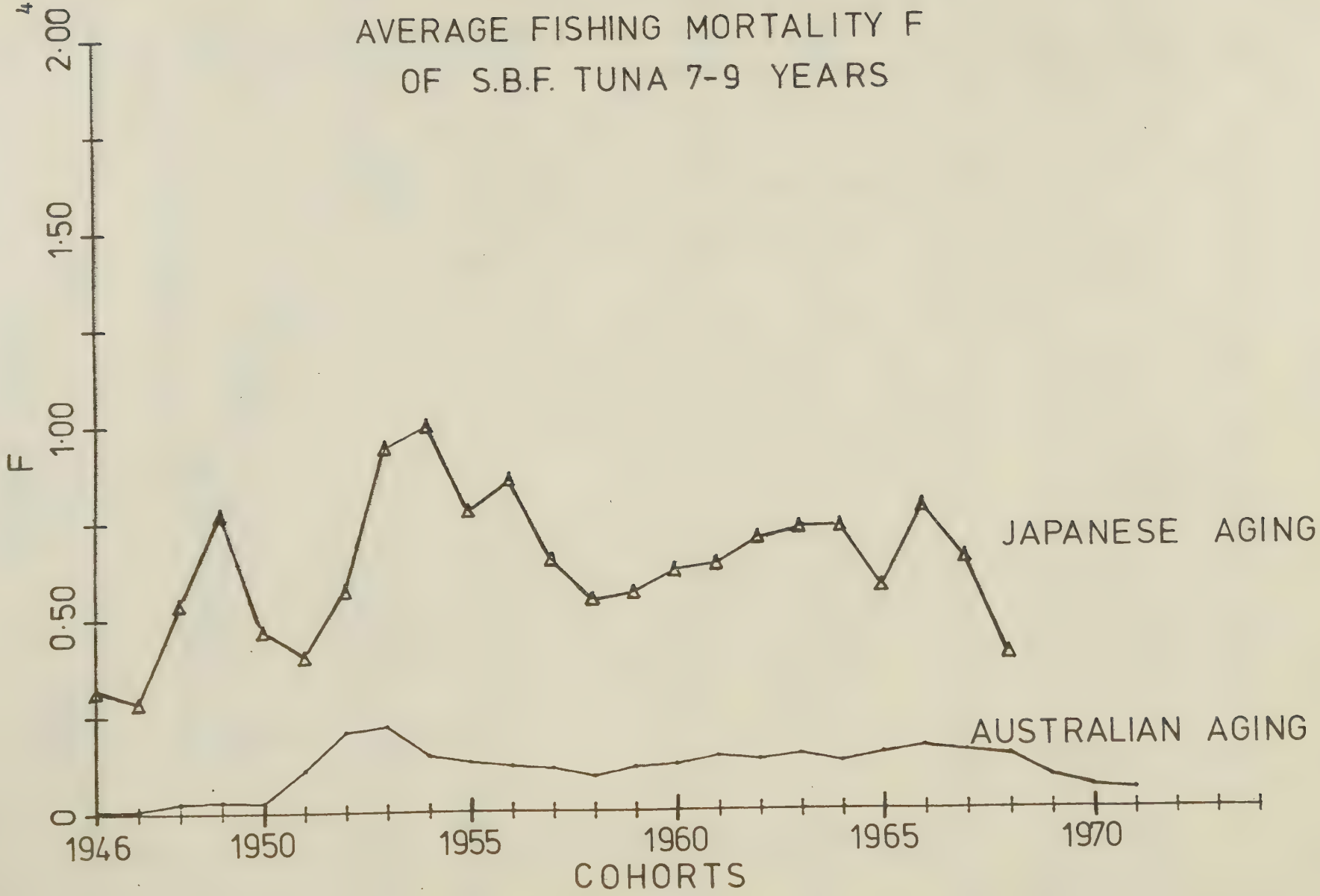
The attached figures are examples of the results. The first is a comparison of the age composition of the 1968 catch using the standard method and the Von Bertalanffy parameters employed by the Japanese scientists and the new method. The second compares the estimates of fishing mortality of ages 7 to 9 derived from the cohort analysis.

Some samples lengths at age are as follows:

2.0 (53.9 cm), 3.0 (72.0 cm), 4.0 (88.1 cm), 5.0 (102.2 cm), 20.0 (194.1 cm).

Full details are being incorporated in a paper being prepared.


AGE DISTRIBUTION OF 1968 CATCH
JAPANESE AGING
AUSTRALIAN AGING
NUMBER (000's)
200
400
600
0
2
4
6
8
10
12
14
16
18
20
22
AGE (years)


AVERAGE FISHING MORTALITY F
OF S.B.F. TUNA 7-9 YEARS
F 4
2·00
1·50
1·00
0·50
0
1946
1950
1955
1960
1965
1970
COHORTS
JAPANESE AGING
AUSTRALIAN AGING

Appendix E

REPORT OF THE AD HOC SESSIONAL COMMITTEE ON TUNA RESEARCH IN THE WESTERN PACIFIC AND INDIAN OCEANS

At the sixth joint meeting of the Committees of the IOFC and IPFC on the management of tuna, considerable interest was shown on the results of the skipjack tagging programme carried out by the South Pacific Commission. An ad hoc committee was therefore constituted in order to make recommendations on similar research projects which might be carried out in the Western Pacific and Indian Oceans. This committee met on Thursday 21 February. Invitations were extended to all the delegations present at the Joint Tuna Meeting to take part in the deliberation of this committee, and the following persons attended:

Dr. G.I. Murphy	Australia
Dr. J.P. Robbins	Australia
Dr. J. Marcille	France
Dr. K.V.N. Rao	India
Mr. V. Soesanto	Indonesia
Mr. Soewito	Indonesia
Dr. T. Yonemori	Japan
Mr. S. Ishida	Japan
Mr. A. Nagamine	Japan
Mr. J.S. Mumba	Kenya
Dr. D. Ardill	Mauritius
Dr. G.H.P. de Bruin	Sri Lanka
Mr. G.K. Libaba	Tanzania
Dr. R. Shomura	U.S.A.
Mr. B. Davies	South Pacific Forum Fisheries Agency
Dr. J.A. Gulland	FAO
Dr. R. Skillman	FAO
Mr. H. Sperling	Regional Fisheries Coordinator (South Pacific)

Following a detailed description of the activities of the skipjack tagging module of the South Pacific Commission, discussion was engaged on the needs for research in the IOFC/IPFC regions. It was decided that research should not be confined to skipjack, as other surface tunas were of considerable interest to many coastal countries. The species under study should therefore include skipjack, juvenile yellowfin and bigeye tunas, as well as the small tunas, principally Euthynnus spp. and Auxis spp.

The following studies were recommended:

(a) Of stock structure and migration
(b) Of stock size
(c) Of growth and other biological data
(d) Of bait distribution and abundance

The means of obtaining the desired knowledge were discussed, and included tagging studies and biochemical genetic studies. It was concluded that, while biochemical genetic studies would be easier and cheaper to conduct from the point of view of sampling, past experience had shown that further refinement of technique might be needed before reliable conclusions could be drawn regarding stock identification.

For tagging experiments, two solutions were examined: to employ a chartered vessel in a systematic programme covering the whole area, and to conduct simultaneous tagging programmes by coastal countries involved in surface tuna fisheries. In the interest of covering the whole region, both solutions might be employed, as considerable interest was shown on fine-scale migrations within national EEZ's, as well as in possible ocean-wide migrations.

The advantages of tagging were pointed out to include identification of potential fishing areas, as well as facilitated biological sampling. A possible difficulty identified was that the probability of recapture of tagged fish was fairly low due to the restricted amount of commercial fishing for surface tunas in the oceanic area of the Indian Ocean at present.

The ad hoc committee therefore believed that the research programme would probably need to include both biochemical genetics and tagging, according to the nature of current commercial fishing. For the former, the existing facilities in the Australian National University would be extremely useful, and the ad hoc committee hoped that it would be possible to maintain these facilities. However, there appears to be no hope that this can be done, leading to the suggestion that Australia should develop an alternative facility.

In conclusion the ad hoc committee felt strongly that a large scale, international funded and executed research programme along the general lines described above would be extremely valuable both for the development of the tuna fisheries, and for the long-term management. However, it recognized that the elaboration of an effective research programme, and its funding, would require very careful analysis of the specific problems (e.g. the relation between skipjack in the Maldives, round Sri Lanka and Laccadives) that needed to be addressed, and the best method of tackling them. This would be a lengthy task.

The ad hoc sessional committee therefore recommends that FAO should seek funding from UNDP in order to recruit an additional expert for the proposed tuna management project in order to:

(a) Review alternative research programmes in the light of the comments listed above

(b) Draw up concrete research proposals

(c) Promote funding to implement these proposals.

It recommends further that the leader of the South Pacific Commission skipjack tagging project might be recruited in a consultant capacity in order that this expert should benefit from experience gained in the South Pacific. Finally, it recommends that tuna specialists of interested member countries meet following conclusion of items (a) and (b) of the expert's terms of reference in order to review the project proposals.

M-43
ISBN 92-5-100939-2